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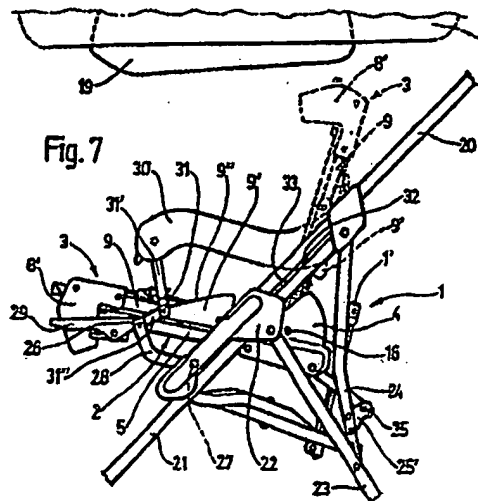
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(54) Convertible pushchair

(57) The pushchair comprises a chassis 1 with a seat 2, a leg-rest 29, armrests 30 with a front handrail 56, an articulated reclining backrest 3 that can be locked in different positions, and a removable fabric cover (T, Figure 8). The chassis 1 comprises a U-shaped handlebar 20 which slides along front legs 21 by means of guide flanges 22 to which are hinged respective rear legs 23 which articulate with the front legs 21 on each side via respective vertical elements 24. The articulation 16 of the backrest 3 allows the latter to be folded down over the seat 2 before the carrycot 7 is secured, the fabric cover (T) not being used when the carrycot 7 is attached to the seat 2 and backrest 3 assembly. The sides of the carrycot are fitted with stiff flaps 19 along the bottom which conceal the aforesaid folded seat 2 and backrest 3 assembly. A control mechanism (52, Figure 14) for unblocking the positions of the backrest 3 is connected with blocking elements (46, Figure 14) by means of flexible braces (53, Figure 4). Because the seat cover (T) is removed when the pushchair is used with the carrycot, it does not become soiled.



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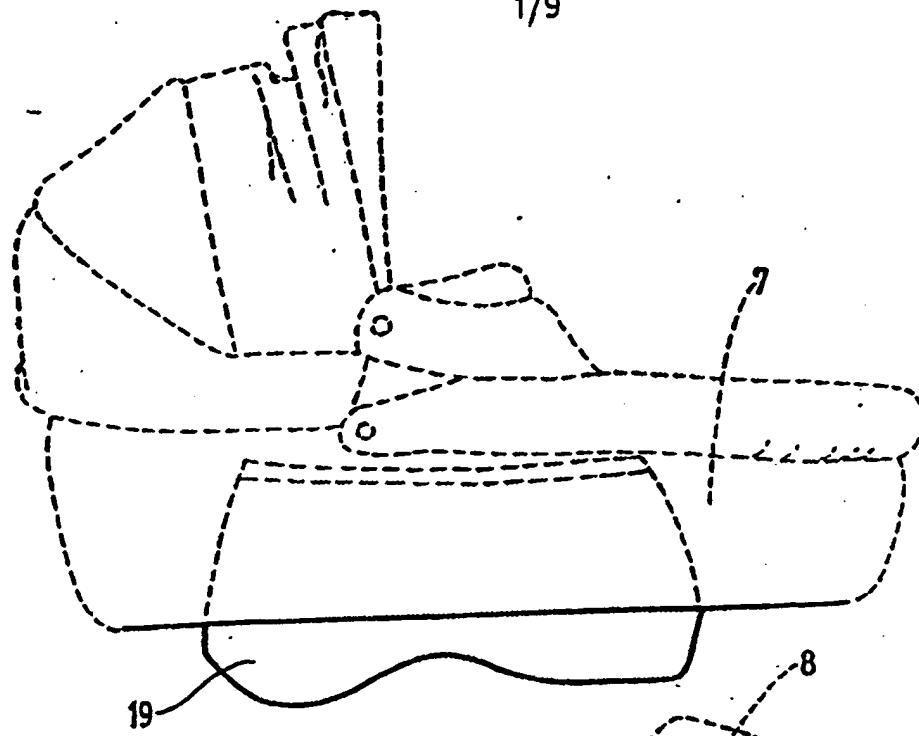
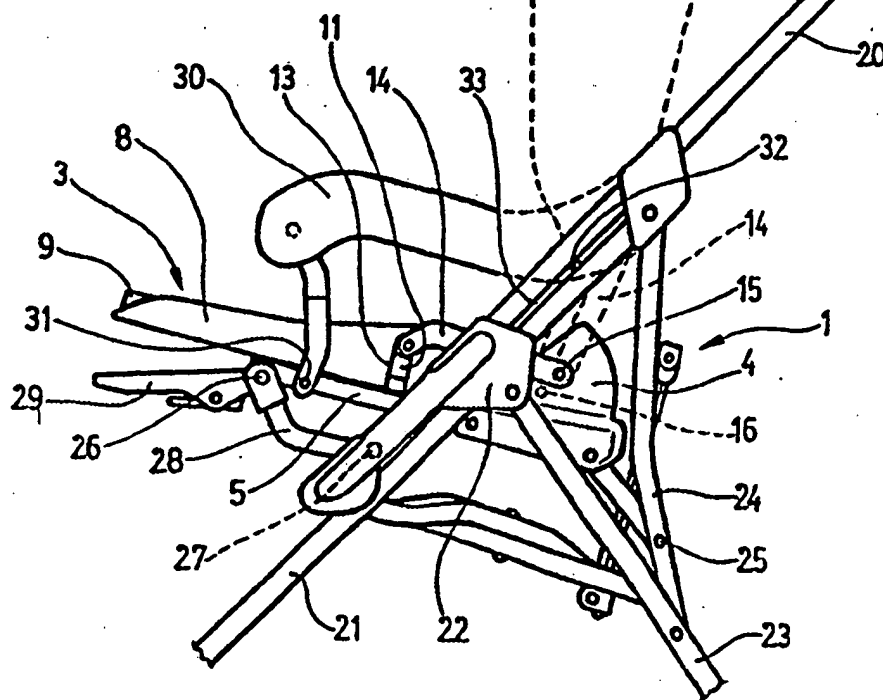


Fig. 1



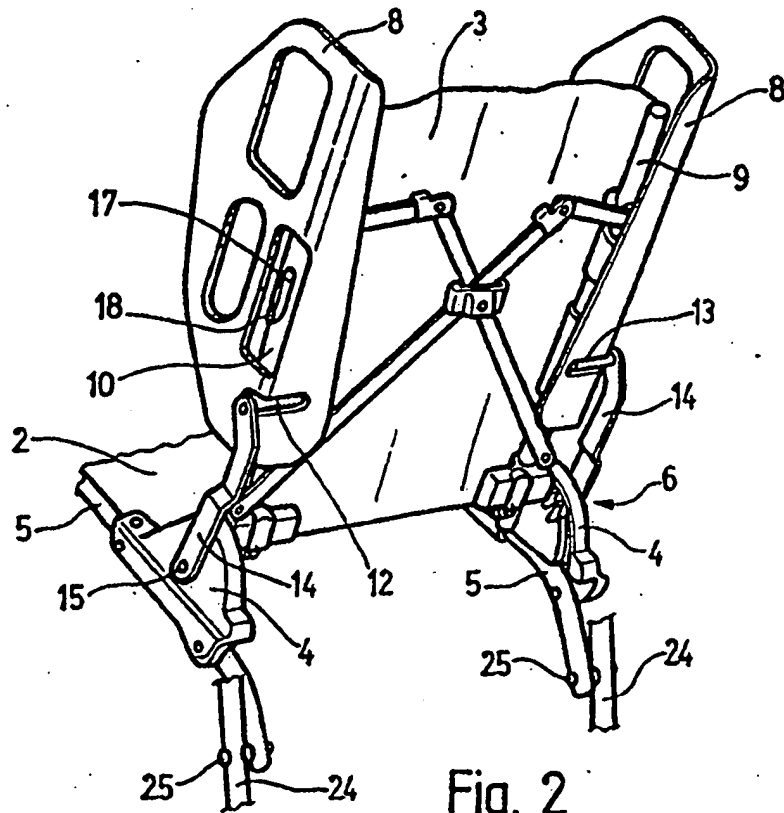


Fig. 2

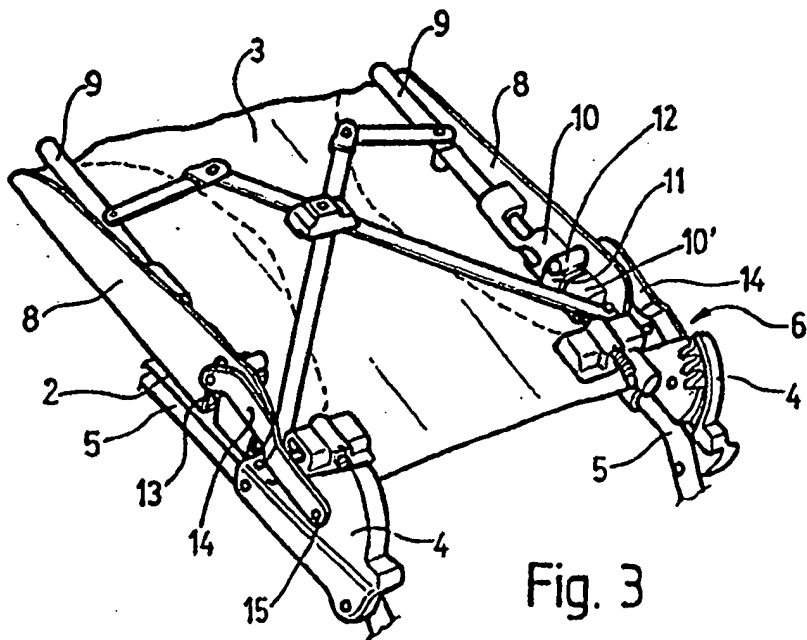
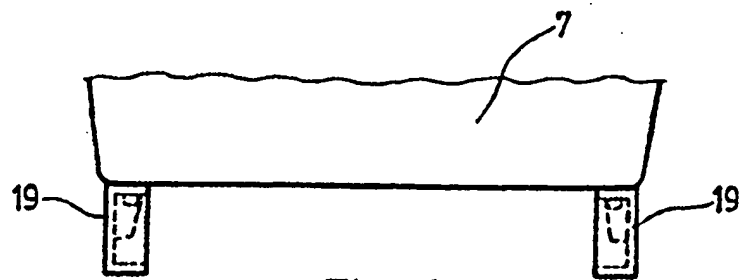
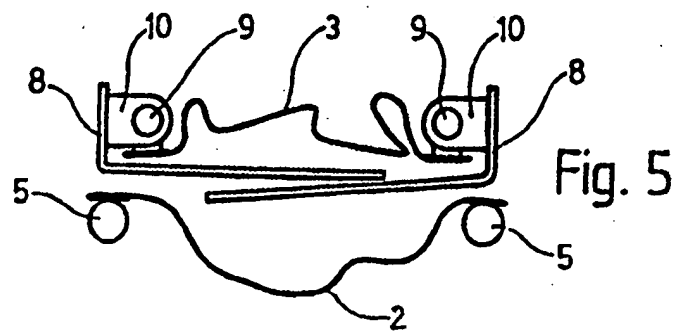
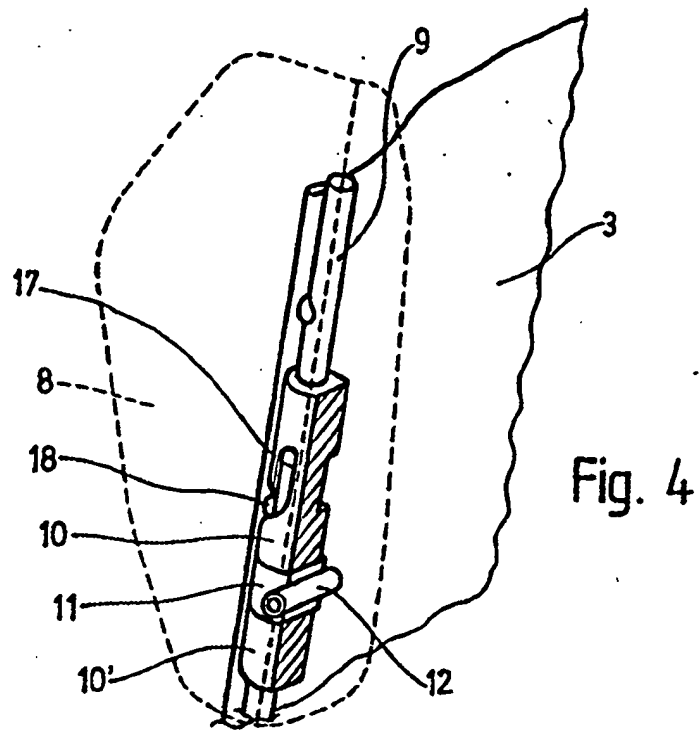


Fig. 3



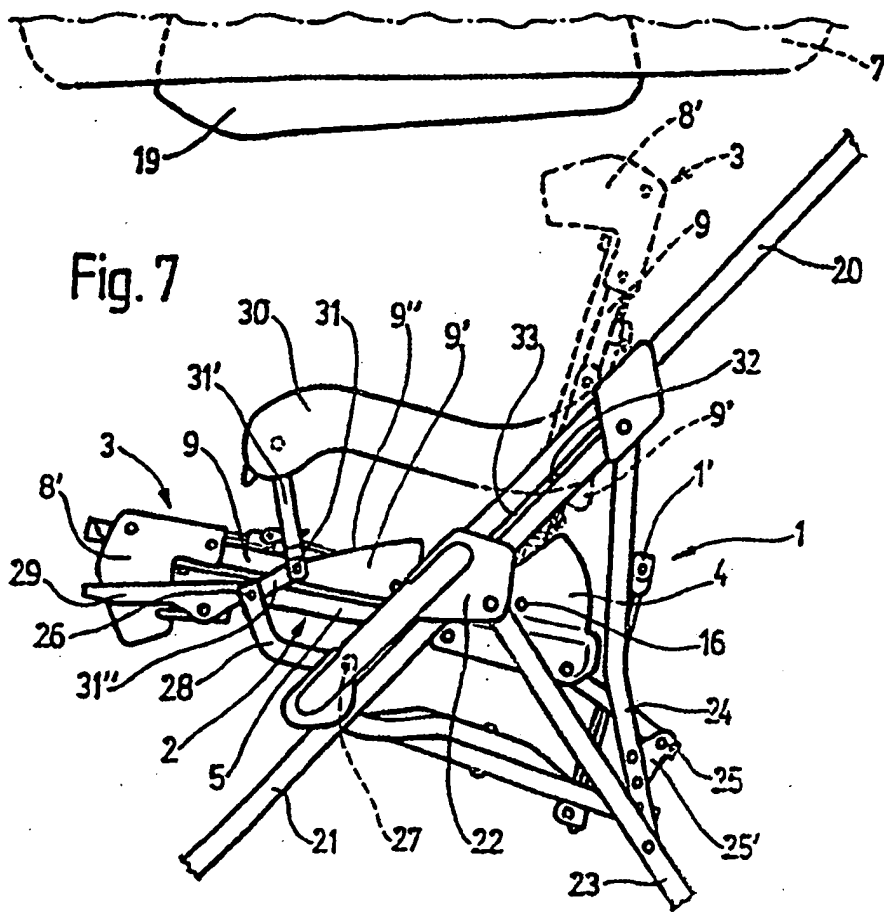


Fig. 7

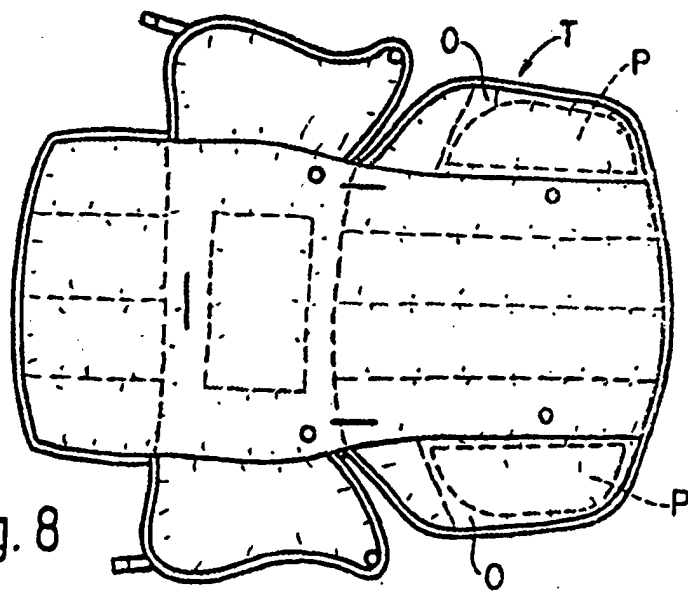


Fig. 8

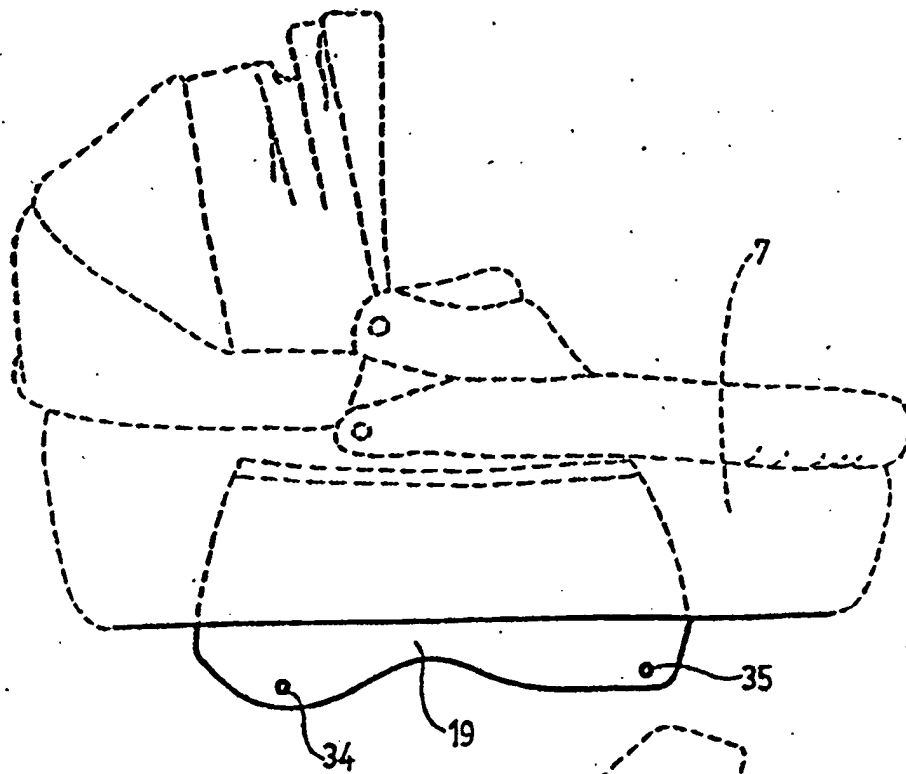
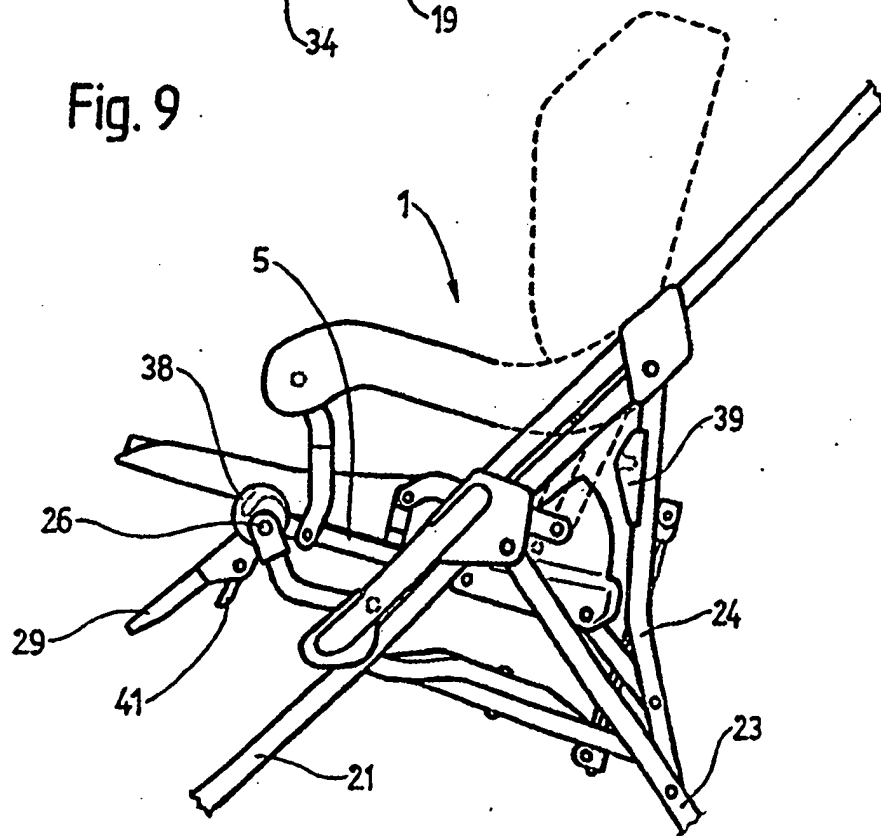


Fig. 9



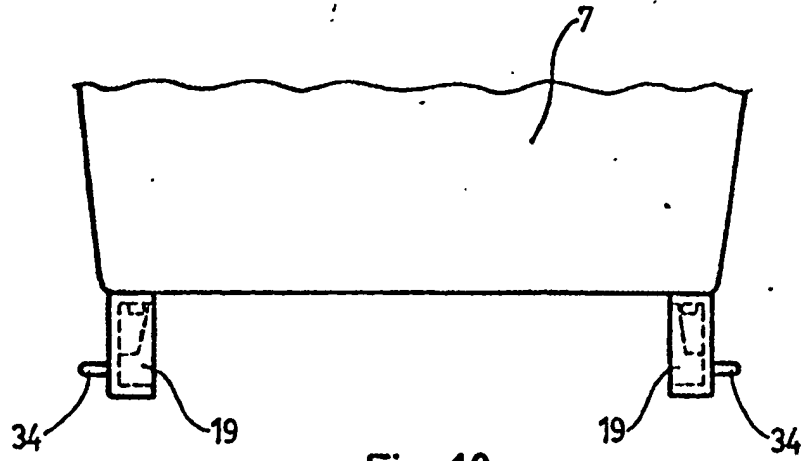


Fig. 10

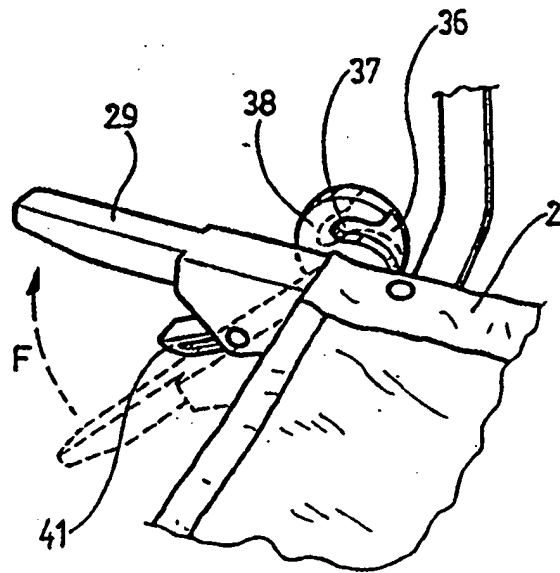


Fig. 11

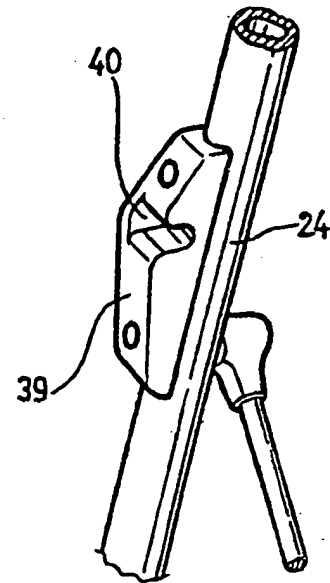
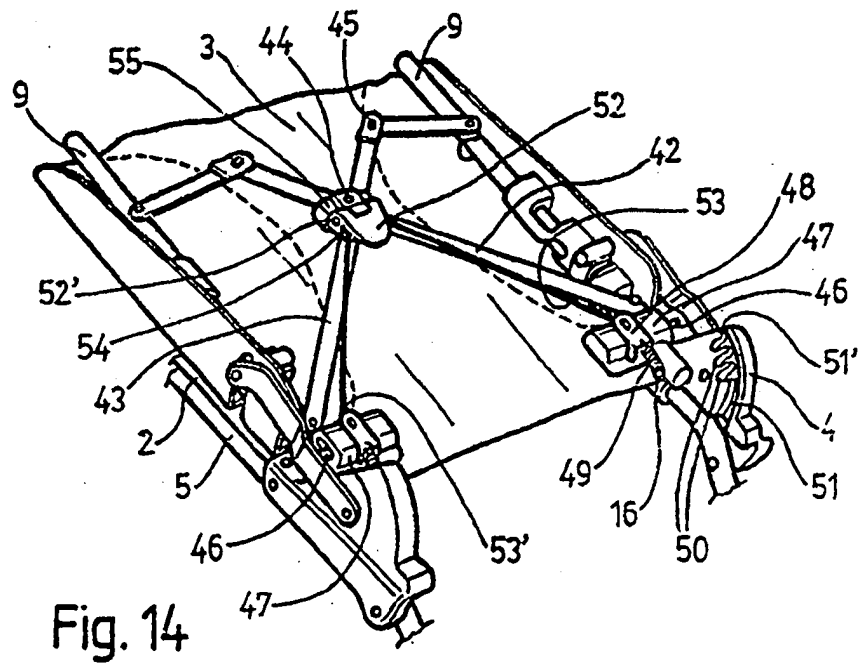
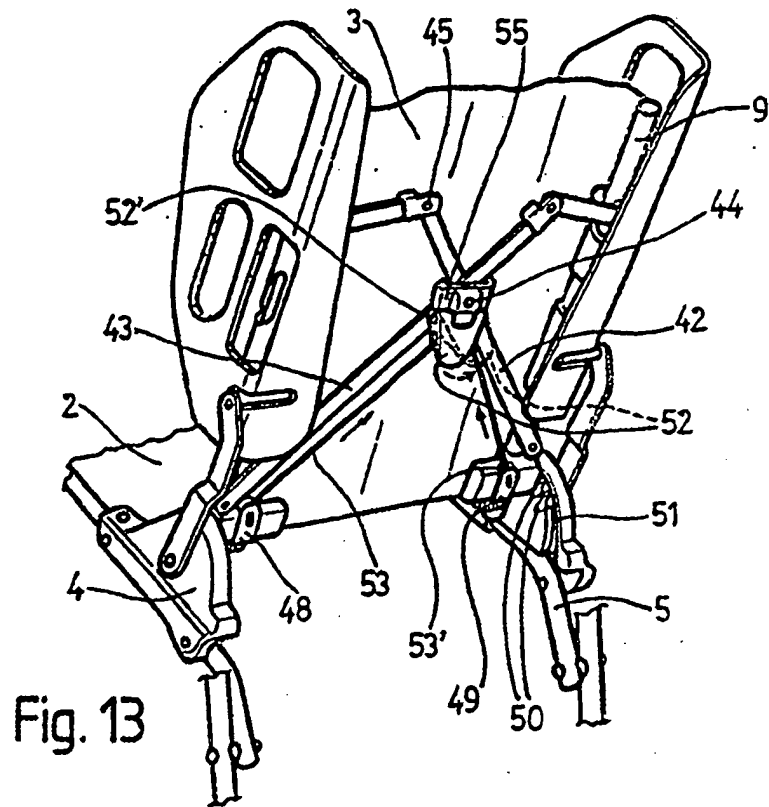
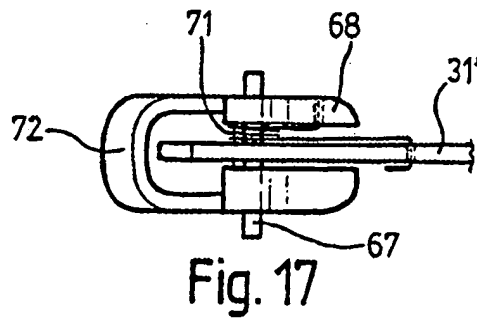
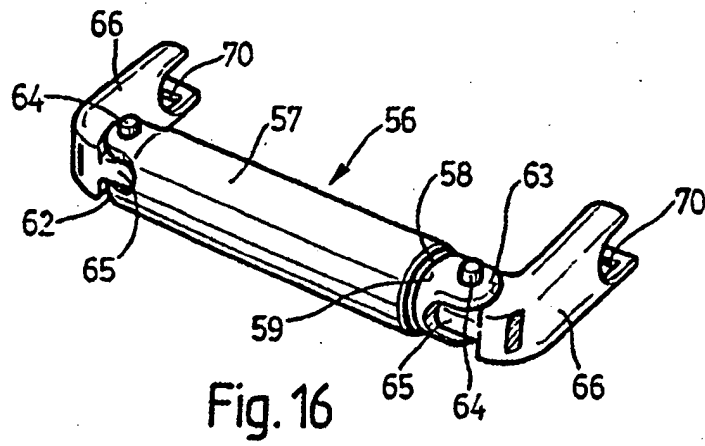
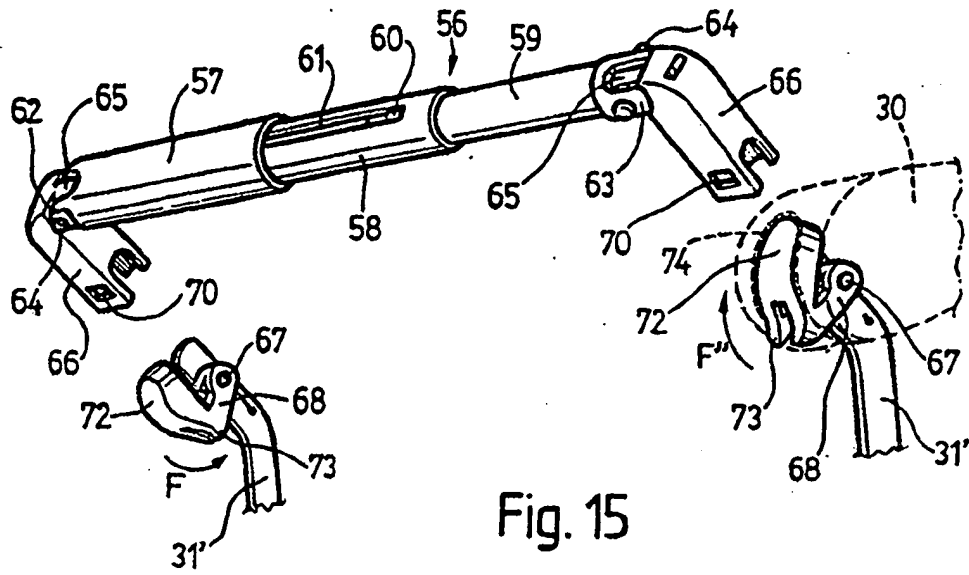


Fig. 12





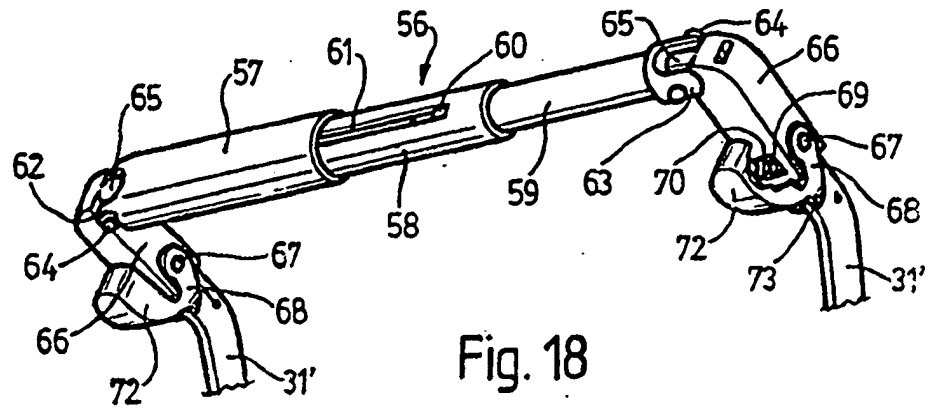


Fig. 18

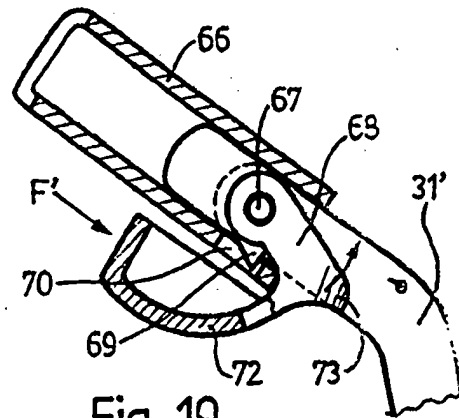


Fig. 19

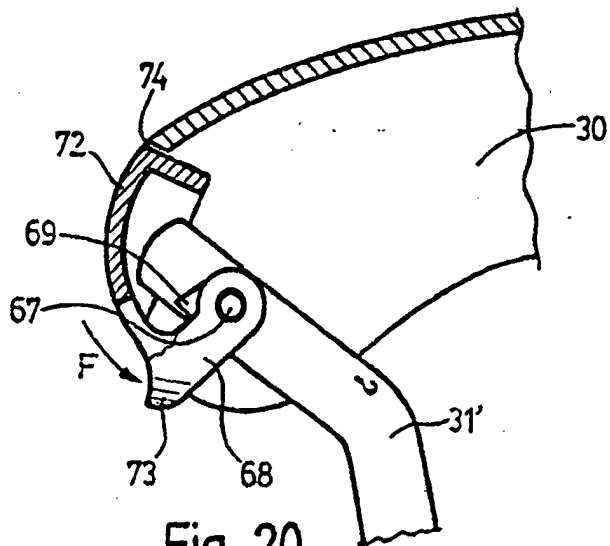


Fig. 20

Infant's folding pushchair

This invention refers to a folding pushchair for infants.

Pushchairs are commonly articulated between the seat
5 and backrest, such that when the latter is set at its
lowest position, thereby forming an extension of the seat,
a carrycot, which is used while the infant is still very
young, can be secured on the base thus formed, this
carrycot being removed when the infant is big enough to sit
10 in the pushchair.

The disadvantage of such pushchairs is that when the
carrycot has been used and removed many times over a period
of months, and taking into account the fact that it is
often set down on the ground, the upholstery of the seat
15 and backrest gets damaged, dirtied and occasionally even
torn, thus spoiling the appearance of the pushchair when in
use as such without the carrycot.

The aim of this invention is to solve that problem, a
characteristic feature being the fact that the backrest
20 folds down juxtaposed over the seat, without the upholstery
cover in place, the carrycot then fitting on to the seat
and backrest assembly in such a way as to conceal it from
view and appreciably improve the appearance of the
pushchair, while at the same time preventing the cover from
25 getting damaged.

As soon as the infant is big enough to sit in the
pushchair, the carrycot may be removed once and for all and
the corresponding cover which, of course, will be clean and
in perfect condition, may be fitted over the seat and
30 backrest.

Another characteristic feature of this invention is the
fact that the backrest has wings which, when it is folded
down over the seat, swivel around 90° to become juxtaposed
to the front side of the backrest while also dropping down

slightly to form a compact unit that is concealed beneath the carrycot.

The aim was also to make a pushchair with the aforementioned characteristics but which would fold up even
5 more compactly, that is, which would be less bulky.

To do this, the swivel-and-slide wings are substituted by smaller, fixed wings which are complemented by larger plates inside the cover on the part pertaining to the wings.

10 Not only does this make for a less bulky folded pushchair but also one that is easier and less costly to produce.

For further compactness in folding the backrest, armrests and seat, and, in general, the whole pushchair
15 according to this invention, the rear articulation of the seat frame and the bottom front articulation of the armrests are set further back.

There are different ways of fixing and securely attaching the carrycot to pushchairs. Such devices commonly
20 include those in which the carrycot is fitted with two pins on the bottom of each side, which fit into and are held in place by the appropriate means on the pushchair chassis.

A characteristic feature of this invention is to secure the carrycot to the pushchair using the articulated
25 leg-rest itself at the front of the seat. For this purpose, the side bars of the leg-rest form, at the top, hooks into which the pins at one end of the carrycot fit and are retained when the leg-rest is swivelled up.

In a case of preferential embodiment of this device,
30 the pushchair chassis comprises, on each side, uprights which connect the rear legs with the front legs, each upright having been fitted with a part specially recessed to take each of the two pins at the other end of the carrycot.

35 Another of the features of this invention lies in connecting the control mechanism with the means for

securing the backrest in different positions by using a flexible device such as a cable, thereby eliminating the usual stiff rods which have to be machined and which require accurate measurements and correctly designed points of articulation for the control mechanism to act at one and the same time on each of the blocking elements situated one on each side of the pushchair.

The control device is flat and is hinged so that it can be flipped up to unblock the locking elements.

Its flatness allows the carrycot to sit perfectly on the seat when the backrest is folded down on it, the carrycot comprising stiff flaps which hang down and help to conceal the seat/folded backrest assembly.

Another characteristic is that the front handrail of the pushchair is made from telescopic sections which extend or contract automatically when the pushchair is opened out or folded up. Furthermore, these telescopic sections have longitudinal guiding devices between them to prevent any accidental twisting, thus ensuring they are always correctly positioned for connection to the pushchair armrests.

A further aim of this invention is to provide the handrail with the means for automatic coupling and easy uncoupling, with the particularity that such means at the same time serve for closing the gap in the armrest, where the handrail is coupled, in the absence of the latter.

For this purpose, the means of coupling consist of some articulated connection elements which fit into the respective openings in the end fittings of the handrail, these connection elements having a piece on the front which serves as an uncoupling device and doubles as the cover for closing the gap in the armrest in the absence of the handrail.

These features may be applied to different types of pushchairs, however, they will preferably be used on pushchairs whose folding involves the arms of the U-shaped

handle sliding down along the front legs through guide flanges in which the respective rear legs are also articulated, these being linked to the front legs by means of uprights; a chassis with this type of folding
5 corresponds to Spanish patent nº P9200976, whose chassis also folds cross-wise.

These and other characteristics will be better understood from the detailed description which follows and which is accompanied for further assistance by nine pages
10 of illustrations representing some practical cases of embodiment which are given only as non-limiting examples of the scope of this invention.

In the illustrations:

Figure 1 shows a side view of the pushchair assembly
15 without the seat upholstered, with the backrest lying juxtaposed on the seat, and with the carrycot separate,

figures 2 and 3 illustrate in perspective a detail of the seat with the backrest in the position for use, and folded down, respectively,

20 figure 4 gives a perspective detail of how the wings are mounted on the backrest,

figure 5 is a diagrammatic front view of the backrest folded down on the seat,

figure 6 illustrates a detail of the bottom of the
25 carrycot, from the front.

Figure 7 is a side view of the pushchair assembly with the seat uncovered, with the backrest fitted with fixed wings and lying juxtaposed on the seat, and showing the bottom of the carrycot separately,

30 figure 8 is a plan view of the fabric cover,

figure 9 shows side views of a pushchair and separate carrycot fitted with the devices for coupling them together,

figure 10 is a frontal elevation of a detail of the
35 bottom of the carrycot, according to figure 9,

figure 11 gives a closer perspective view of a detail of the leg-rest with the carrycot retention hook,

figure 12 also shows a perspective view of the component which complements the attachment of the carrycot
5 to the pushchair chassis.

figures 13 and 14 give a perspective view of the backrest in the upright position for use and folded down over the seat, respectively, and fitted with the cable control mechanism.

10 figure 15 is a perspective view of the front handrail uncoupled from the attachment fittings on the armrests,

figure 16 is a perspective view of the handrail in the contracted, folded position,

figure 17 shows a plan view of the attachment fitting,

15 figure 18 represents a perspective view of the handrail coupled to the attachment fittings,

figure 19 is a cross-section elevation detailing the coupling of the handrail to the attachment fitting, and

figure 20 is a cross-section elevation of the
20 attachment fitting, without the handrail, closing the front gap on the armrest.

From the drawings, the pushchair is seen to consist of a chassis -1- with seat -2- and backrest -3- articulated on a block -4- joined to the rear part of the side bars -5- of
25 the seat frame, this block housing the means -6- for locking the different reclining positions of the backrest, the pushchair being completed with a carrycot -7- that can be fixed onto the seat once the backrest -3- has been folded down over the seat -2-.

30 The baby is lain in the carrycot and the latter is then fixed onto the backrest/seat assembly which is not fitted with the usual upholstery cover.

The backrest -3- has L-section wings -8- which, when it is folded down over the seat -2-, swivel round 90° to
35 become juxtaposed and overlapped on the front of the backrest, while at the same time sliding down the sides -9-

of the backrest frame such that in the folded position they jut out as little as possible beyond the front edge of the seat -2-.

This swivel-and-slide action of the wings -8- is achieved by them being fixed to some freely rotating sleeves mounted on the respective side bars -9- of the backrest frame. These sleeves have an extra piece -10'- at the bottom and, between the sleeve and the extra piece, and freely mounted on the relevant side bar -9-, is a bushing -11- with a crosspiece -12- joined to it which protrudes through an opening -13- in the wing and on which a tiebar -14- articulates, which in turn articulates with block -4- at point -15-.

When the backrest -3- is folded face downwards by the side bars -9- being made to rotate around the articulation point -16- on block -4-, the tiebars -14- hold the wings in the down position, the wings sliding down through the sleeves -10- on the side bars -9-. At the same time, a lug -18- joined to the side bars -9-, moves along a link groove -17- in the sleeves, causing the wings to swivel round to the overlap position shown in figures 3 and 5.

In this folded backrest position the seat/backrest assembly is concealed and disguised by the stiff overhangs -19- on the lower sides of the carrycot -7-.

The pushchair chassis -1- comprises a U-shaped handlebar -20- which slides along the front legs -21- by means of guide flanges -22- to which are hinged the respective rear legs -23- which articulate with the front legs -21- on each side via the corresponding uprights -24-.

The side bars -5- of the seat frame articulate at the rear -25- with the respective upright -24-, and articulate -26- at the front with the bottom -27- of the arms of the handlebar -20- by means of support tiebars -28-.

The pushchair is completed with a leg-rest -29- and armrests -30- which articulate -31- with the front of the seat frame side bars -5-, and at the rear these armrests

are coupled -32- to elements -33- which are part of the guide flanges -22- joined to the respective arms of the handlebar -20-.

When the infant can sit in the chair, the carrycot -7- may be removed and the backrest -3- raised, the corresponding cover -T- being fitted onto the seat/backrest assembly, which cover will be in excellent condition as it will still be quite new and unworn.

As shown in figure 7, the backrest -3- is fitted with small wings -8'- fixed on the top of the backrest frame side bars -9-, and folds down over the seat when the said side bars -9- are made to turn around their point of articulation -16- with the blocks -4-.

These wings are complemented with plates -P- fitted inside the cover -T- in the area corresponding to the wings -O-.

In this case, the side bars -5- of the seat frame articulate at the rear -25- with the lugs -25'- joined to the back of the respective upright -24-, and the armrests -30- articulate -31- by means of tiebars -31'- with the backward-facing fingers -31"- joined to the front of the side bars -5- of the seat frame.

The side bars -9- of the backrest frame each carry an oblique-edged -9"-, backward-facing plate -9'- halfway along, which, when the pushchair is unfolded, are pushed by elements -1'- at the rear of the chassis to raise the backrest to the position for coupling with the block unit -4- which provides the means for locking the different backrest positions.

As shown in figure 9, each of the stiff side flaps -19- is fitted with two pins -34- and -35- on the outer side, one at each end.

In attaching the carrycot -7- to the pushchair -1- the front pins -34- of the carrycot fit into the mouth -36- (figure 11) of a hook -37- formed on the inside of a disc -38- which is integral with the sides of the leg-rest -29-,

which sides articulate around the spindles -26- on the front of the side bars -5- of the pushchair seat. Once the pin is slipped into the aforesaid hook, when the leg-rest is raised as shown by the arrow -F-, the pin -34- will be
5 retained in the bottom of the hook.

The uprights -24- are fitted with a part -39- (figure 12) which has an inset -40- on the inner side, to take the pins -35- of the other end of the carrycot.

Thus, the carrycot is attached to the pushchair in the
10 following manner:

With the leg-rest lowered, first the pins -35- are clipped into the insets -40- and then the pins -34- are clipped into the mouths of the hooks -37-. Then the leg-rest is raised to fasten the carrycot securely. To
15 remove the carrycot, the procedure is reversed. Reference -41- indicates a fastener which locks the leg-rest in the raised position.

In accordance with figures 13 and 14, the two side bars -9- are connected to each other by means of two crossed
20 arms -42- and -43- which articulate together by means of the spindle -44-, are also articulated to the said side bars and which, at the top ends, are in turn articulated at an intermediate point -45-.

The block units -4- form part of the means for locking
25 the backrest positions, these means comprising a cross spindle -46- housed in a casing -47- integral with the bottom end of the backrest's side bars -9-, in which casing there is a slide -48-, the sliding piece of which is integral with the spindle -46- and is drawn by a spring
30 -49- that tends to keep the spindle -46- couched in one of the radial notches -50- in an arched groove -51- of the block units -4-.

It is characteristic of this invention that the control
-52- of the unblocking device is connected with the
35 spindles -46- which lock the backrest position at the required angle by means of flexible straps -53- comprising,

for example, an appropriately sheathed cable in its middle section which passes freely through a transverse slot -54- in the actual control mechanism -52- and which, at the ends -53'-, joins up, respectively, with each of the slide components -48-.

The control mechanism -52- articulates by means of spindle -52'- with a support -55- fixed, with spindle -44-, at the crossover point between arms -42- and -43-, such that pulling the mechanism up raises the sliding parts in the slides -48- and, with them, their spindles -46- which will slip out of the notches -50- and slide along the arched groove -51- in search of another position for the backrest.

The groove -51- is open at the front end -51'- which enables the spindle -46- to be released from the block units -4- and thus to position the backrest -3- on the seat -2-. This position of the backrest facilitates attachment of the carrycot on top, and a characteristic feature being that the control mechanism -52- is flat, to avoid any problems with the carrycot positioning.

It is understood that any other means of locking, besides those shown here, may be used, as the important factor is that the unblocking be actuated from the control mechanism via flexible straps such as cables, nylon threads or other appropriate elements.

As shown in figure 15, the handrail -56- consists of three sections -57-, -58- and -59-, coupled together telescopically and comprising longitudinal guides between them to keep them in line with each other, the middle sections of which consist of protrusions -60- from the sections -58- and -59-, which move in the grooves -61- made in the sections -57- and -58-.

The ends of the handrail are forked -62- and -63- and articulate, via a spindle -64-, with the side lugs -65- on the tubular fittings -66- that go on the top ends of the support tiebars -31'- with which the front ends, of the

pushchair armrests -30- articulate by means of spindle -67-.

At this front end of the armrests and on the actual spindle -67- are hinged some coupling elements -68- which
5 form teeth -69- (figure 19) that fit into the respective openings -70- made in the aforesaid tubular fittings -66- of the handrail. These coupling elements -68- are pressured into their active coupling position towards the armrest by the helical springs -71- (figure 17) sitting on the
10 spindles -67- and anchored at the ends, respectively, to the element itself -68- and to the support tiebar -31'-.

The coupling elements -68- are slightly rounded at the front -72- with a spur -73- at the bottom to serve as a manual device for uncoupling, as indicated by the arrow
15 -F-, the coupling element -68- from the armrest, and revealing the gap -74- at the front end of the armrest through which the tubular fittings -66- of the handrail will have access to the top end of the support tiebars -31'- (figures 20 and 19).

20 To uncouple the handrail -56-, the front end of the rounded parts -72- are pressed on the coupling elements -68-, as indicated by arrow F', which will cause the coupling element to rotate and free the teeth -69- from the opening -70- of the tubular fittings -66- on the handrail.
25 On releasing the coupling elements the spring -71- will recover and the rounded parts -72- will flip up as per arrow F" and cover the gap -74- in the armrest.

CLAIMS

1. Infant's folding pushchair comprising a chassis (1) with a seat (2), leg-rest (29), armrests (30), front handrail (56), articulated reclining backrest (3) that can
5 be locked in different positions, and a removable fabric cover (T), the seat (2) of which is designed to take a carrycot (7), characterised by the articulation (16) of the backrest (3) enabling it to be folded down over the seat (2) before the carrycot (7) is secured on it.

10 2. Infant's folding pushchair, according to claim 1, in which the fabric cover (T) is not fitted on when the carrycot (7) is secured on the seat (2) and backrest (3) assembly.

3. Infant's folding pushchair, according to claim 1, in
15 which the sides of the backrest (3) comprise a swivel-and-slide mechanism for the wings (8).

4. Infant's folding pushchair, according to claims 1 and 3, in which, when the backrest (3) is folded down over the seat (2), the wings (8) swivel round to the front side
20 of the backrest (3) while at the same time sliding down.

5. Infant's folding pushchair, according to claim 1, in which the sides of the carrycot (7) have stiff flaps (19) attached to the lower part to conceal the juxtaposed seat (2) and backrest (3) assembly when the carrycot (7) is
25 secured on top.

6. Infant's folding pushchair, which comprises a chassis (1) equipped with a seat (2), leg-rest (29), armrests (30), articulated reclining backrest (3) that can be locked in different positions, and a removable fabric
30 cover (T), the seat (2) of which is designed to take a carrycot (7) and the chassis of which (1) comprises a U-shaped handlebar (20) which slides along the front legs (21) by means of guide flanges (22) to which are hinged the respective rear legs (23) which articulate with the front
35 legs (21) on each side via the corresponding uprights (24),

characterised by the fact that the side bars (5) of the seat frame (2) articulate (25) at the rear with the respective upright (24), and articulate (26) at the front with the bottom end (27) of the arms of the handlebar (20) by means of support tiebars (28).

7. Infant's folding pushchair, according to claim 6, in which the armrests (3) articulate (31) with the front of the seat (2) frame side bars (5) via support tiebars, said armrests (30) being indirectly coupled (32) at the rear to the respective arms of the handlebar (20).

8. Infant's folding pushchair, according to claim 1, characterised by the fact that fixed wings (8') are mounted on the sides of the backrest (3).

9. Infant's folding pushchair, according to claim 8, in which the wings (8') are small in size and complemented with larger plates (P) inside the fabric cover (T) on the part corresponding to the wings (O).

10. Infant's folding pushchair, according to claim 6, characterised by the fact that the side bars (5) of the seat frame (2) articulate at the rear (25) with a lug (25') which is joined to the corresponding uprights (24).

11. Infant's folding pushchair, according to claim 7, in which the tiebars (31') articulate (31) with the front of the seat frame (2) side bars (5) by means of a finger (31") which is integral with said side bars (5) and pointing backwards.

12. Infant's folding pushchair, according to claims 1 and 6, which comprises two pins (34 and 35) on the bottom of each side of the carrycot (7) that fit into and are held in place by certain means fixed onto the pushchair chassis (1), characterised by the fact that the pins (34) at one end of the carrycot (7) fit into and are held by hooks (37) integral with the sides of the leg-rest (29) articulated to the pushchair seat (2).

13. Infant's folding pushchair, according to claim 12, in which the two pins (35) at the other end of the carrycot

(7) sit into their respective parts (39) which are recessed (40) and which are integral with the uprights (24) of the chassis (1).

14. Infant's folding pushchair, according to claim 1,
5 characterised by the fact that the control mechanism (52) for unblocking the seat positions (3) is connected with the blocking elements (46) by means of flexible braces (53).

15. Infant's folding pushchair, according to claim 14,
in which the control mechanism (52) is flat and articulated
10 (52').

16. Infant's folding pushchair, according to claim 1,
the handrail (56) of which includes fittings (66) at the ends, which can be non-permanently coupled to the front end of the armrests (30) of the pushchair, characterised by the
15 fact that the handrail (56) is made up of sections (57, 58 and 59) interconnected telescopically, which extend out and close in with the unfolding and folding up, respectively, of the pushchair.

17. Infant's folding pushchair, according to claim 16,
20 in which the telescopic sections (57, 58 and 59) of the handrail present longitudinal guides (60, 61) between each other to keep them in line.

18. Infant's folding pushchair, according to claim 16,
in which, for the aforesaid coupling, the front ends of the
25 armrests (30) have been fitted with coupling elements (68) which clip into the respective openings (70) made in the end fittings (66) on the handrail (56).

19. Infant's folding pushchair, according to claim 18,
in which the coupling elements (68) are articulated (67)
30 and are spring-(71)-pressured into their active coupling position against the armrest (30).

20. Infant's folding pushchair, according to claims 18 and 19, in which the coupling element (68) has a rounded front part (72) which serves as a manual control for
35 uncoupling purposes and at the same time serves to cover over the gap (74) in the front end of the armrest (30)

where the handrail (56) fits in, in the absence of the latter.

21. An infant's folding pushchair substantially as described herein with reference to the drawings.



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Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.N): B7B (BTC,BTF1) A5X

Int Cl (Ed.6): B62B 7/06,08,12

Other: WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	GB1574883 Telisport	
A	GB1536280 Gannet	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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